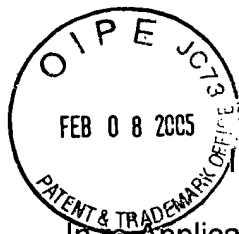


DA-CTW



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Peter Clifford GREEN

Serial No.: 10/669636

Filing Date: September 25, 2003

For: FURTHER IMPROVEMENTS IN AND
RELATING TO FENCING

**RENEWED PETITION
UNDER 37 C.F.R. 1.137(b)**

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Attached hereto is a copy of the denial of the petition filed July 21, 2004. The reason for the denial is that the Office computer database fails to show the filing of a continuation application on or about the time of filing the Petition to Revive.

Attached hereto is a date receipted postcard that was attached to a Petition for Revival filed July 21, 2004 and attached to that petition was the petition fee, Form PTO-2038, a Reply to the Notice of Missing Parts in the form of a Rule 53(b) continuation application. All those documents are again submitted and it will seen from the date receipted postcard that the office received all these documents on July 21, 2004. A copy of the backside of the postcard is also submitted noting that this postcard had postage prepaid and we requested that the Office stamp the serial number of the new Rule 53 continuation application. Unfortunately the Office did not stamp the serial number where

BEST AVAILABLE COPY

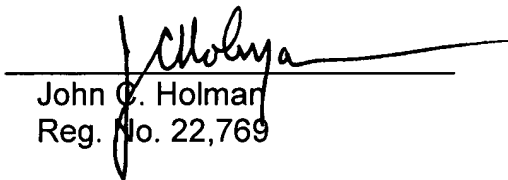
indicated, therefore counsel does not know the serial number of the Rule 53(b) continuation which was clearly filed July 21, 2004, the same day as the Petition for Revival.

By virtue of the copy of both sides of the postcard and the documents filed July 21, 2004, it is submitted irrefutable proof that a continuation application was submitted July 21, 2004 has now been placed in the record. The early granting of this petition; the informing counsel of the serial number of the new continuation application; and a Notice of Missing Parts is courteously requested.

Respectfully submitted,

JACOBSON HOLMAN PLLC

By:

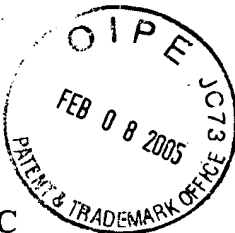

John C. Holman
Reg. No. 22,769

400 Seventh Street, N.W.
Washington, DC 20004
(202) 638-6666
Atty. Dkt. No.: P65280US4
Date: February 8, 2005

Enclosures: Copy two sides date receipted
and postage paid postcard dated 7/21/04
Copy all papers filed 7/21/04
Copy Denial of Petition mailed 1/18/05



Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov



JCH

JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON DC 20004

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JAN 18 2005

OFFICE OF PETITIONS

JACOBSON HOLMAN PLLC		
Response Due On Or Before		
3	18	05
Month	Day	Year

In re Application of
Green, Peter Clifford
Application No. 10/669,636
Filed: September 25, 2003
Attorney Docket No. P65280US3

ON PETITION

This is a decision on the petition under 37 C.F.R. § 1.137(b), filed July 21, 2004, to revive the above-identified application.

The petition is **DISMISSED**.

Any request for reconsideration must be submitted within TWO (2) MONTHS from the mail date of this decision. No further petition fee is required for the request. Extensions of time under 37 CFR 1.136(a) are permitted. The reconsideration request should include a cover letter entitled "Renewed Petition under 37 CFR 1.137(b)." This is **not** a final agency action within the meaning of 5 U.S.C. § 704.

The above-identified application became abandoned for failure to reply in a timely manner to the Notice to File Missing Parts of Application (Notice) mailed December 18, 2003. The Notice set a period for reply of two (2) months from the mail date of the Notice. No extensions of time under the provisions of 37 CFR 1.136(a) were obtained. Accordingly, the above-identified application became abandoned on February 19, 2004.

A grantable petition under 37 CFR 1.137(b) must be accompanied by:

- (1) the required reply,
- (2) the petition fee,
- (3) a statement that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition pursuant to 37 CFR 1.137(b) was unintentional, and
- (4) a terminal disclaimer and fee if the application was filed on or before June 8, 1995 or if the application is a design application.

Where there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137 was unintentional, the Commissioner may require additional information.²

¹ In a nonprovisional application abandoned for failure to prosecute, the required reply may be met by the filing of a continuing application. In an application or patent, abandoned or lapsed for failure to pay the issue fee or any portion thereof, the required reply must be the payment of the issue fee or any outstanding balance thereof.

² See MPEP 711.03(c)(III)(C) and (D).

The instant petition lacks item (1). As a response to the Notice, petitioner states that a continuation application was submitted. Unfortunately, Office computer database records fail to disclose the filing of a continuation application on or around the time of filing of the instant petition to revive. **Accordingly, petitioner must state the application number of the continuation application in order that a proper decision on the merits of this petition may be given.**

Further correspondence with respect to this matter should be addressed as follows:

By mail: Mail Stop PETITIONS
Commissioner for Patents
Post Office Box 1450
Alexandria, VA 22313-1450

By hand: Customer Window located at:

U.S. Patent and Trademark Office
220 20th Street S
Customer Window, Mail Stop Petitions
Crystal Plaza Two Lobby, Room 1B03
Arlington, VA 22202

By fax: (703) 872-9306
ATTN: Office of Petitions

Any questions concerning this matter may be directed to the undersigned at (571) 272-3206.



Liana Chase
Petitions Examiner
Office of Petitions
Office of the Deputy Commissioner
for Patent Examination Policy



JH Ref P65280US4
Serial/Patent No. not yet assigned
Applicant, Patentee, Assignee Peter Clifford GREEN
Filing Date/Patent Date July 21, 2004

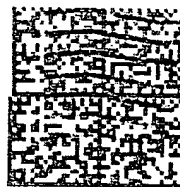
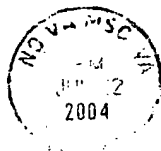
The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

- ☒ 22 pp. Specification & 29 Claims ☐ Response to Office Action
☒ Combined Declaration, Power of Attorney (copy) ☒ Abstract ☒ Disclosure Statement-IDS (copy)
☐ Preliminary Amendment ☐ Copies of References
☒ Rule 53 (b) Application (duplicate) ☐ Request for Refund
☐ Rule 53 (d)/RCE Application ☐ Request for Corrected Filing Receipt
☐ Claim to Priority and Certified Copy JUL 21 2004 ☒ Petition for ~~NOT~~ Revival of Appln. 10/644636 (duplicate)
☐ Substitute ☐ Subsequent Declaration ☐ Notice of Appeal/Brief
☐ Maintenance Fee ☐ Sequence Listing
☒ Drawings 8 Sheets ☒ Formal ☐ Informal ☐ Issue Fee Transmittal
☐ Assignment/Change of Name ☒ Other New Power of Atty & Change of Corres. Address;
☐ Small Entity Declaration JACOBSON HOLMAN PLLC
☒ Check for \$ 665.00 400 SEVENTH STREET, N.W.
Credit card WASHINGTON, D.C. 20004

JH 11/01 DUE DATE N/A
Person filing DLS

SERIAL NO. _____

Copy Form PTO-892



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Mailed From 20004
US POSTAGE

JACOBSON HOLMAN PLLC
400 SEVENTH STREET, N.W.
WASHINGTON, D.C. 20004



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Peter Clifford GREEN

Serial No.: 10/669636

Filing Date: September 25, 2003

For: FURTHER IMPROVEMENTS IN AND
RELATING TO FENCING

**PETITION FOR REVIVAL OF AN
APPLICATION FOR PATENT
ABANDONED UNINTENTIONALLY
UNDER 37 C.F.R. 1.137(b)**

Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

The above-identified application, namely Serial No. 10/669636 was abandoned through inadvertent failure to pay the extension of time fee and submit missing parts. The last date to do this was July 18, 2004, five months after the due date to respond to the Notice of Missing Parts.

A petition fee in the amount of \$665 under 37 C.F.R. §1.17(m) is attached hereto in the form of credit card PTO-2038. Should this amount prove insufficient, or the credit card request become detached, authorization is herewith given to charge undersigned counsel's deposit account 06-1358.

A proper reply to the Notice of Missing Parts is attached in the form of a Rule 53(b) continuation application.

A Terminal Disclaimer is not necessary since the filing date of this application is after June 8, 1995.

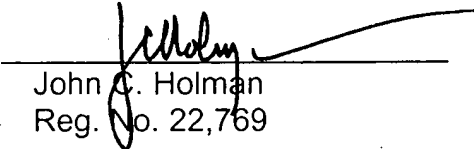
The entire delay in filing the required reply from the due date for reply until the filing of a grantable Petition under 37 C.F.R. §1.137(b) was unintentional.

Early indication that this Petition has been granted and that this application has been forwarded to the application branch is courteously awaited.

Respectfully submitted,

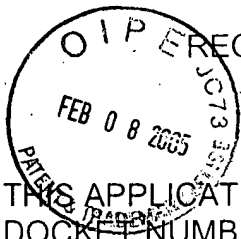
JACOBSON HOLMAN PLLC

By:


John C. Holman
Reg. No. 22,769

400 Seventh Street, N.W.
Washington, DC 20004
(202) 638-6666
Atty. Dkt. No.: P65280US4
Date: July 21, 2004

Enclosures: Petition Fee
Form PTO-2038
Reply to the Notice of Missing Parts
Rule 53(b) Continuation Application



REQUEST FORM AND FORMALITIES PRELIMINARY AMENDMENT FOR
FILING A PATENT APPLICATION UNDER 37 C.F.R. 1.53(b)

Submit an original and a duplicate for fee processing

THIS APPLICATION:

DOCKET NUMBER

FILING DATE

PRIOR APPLICATION:

EXAMINER

ART UNIT

TOTAL NO.

OF PAGES

P65280US4

July 21, 2004

John R. Cottingham

3679

52

Address to:

Commissioner for Patents
P.O. Box 1450
Mail Stop Patent Application
Alexandria, VA 22313-1450

RULE 53(f) - NO FEE

This is a request for filing a ☒ continuation or ☐ divisional application under 37 C.F.R. 1.53(b) of prior application Serial No. 10/669636 filed on September 25, 2003, entitled FURTHER IMPROVEMENTS IN AND RELATING TO FENCING by the following inventor(s).

	Family Name	First Given Name	Second Given Name
Full Name of Inventor	GREEN	Peter	Clifford
	City	State or Foreign Country	Country of Citizenship
Residence & Citizenship	Hamilton	New Zealand	New Zealand
	Post Office Address	City	State & Zip Code/ Country

Post Office

Address 21 McInnes Place, Hamilton, New Zealand

☐ additional sheet(s) with inventors information attached

- ☐ A Second Preliminary Amendment is enclosed.
- ☐ Cancel claim(s) _____ for purposes of lessening filing fees.

The filing fee is calculated on the basis of the claims existing in the prior application as amended by 1 and/or 2 above.

CLAIMS

Basic Fee		\$375	\$750
Total Claims	29 - 20 =	x 9 = \$ 81	x 18 = \$
Ind. Claims	3 - 3 =	x 42 = \$	x 84 = \$
<input type="checkbox"/> Multiple Dependent Claims		+140 = \$	+ 280 = \$
		Total \$456	Total \$

3. ☐ The Commissioner is hereby authorized to charge fees under 37 C.F.R. 1.16 and 1.17 which may be required or credit any overpayment to Deposit Account No. 06-1358. A duplicate copy of this sheet is enclosed.
4. ☒ This application is filed under Rule 53(f) and therefore the ☒ Filing Fee ☐ Declaration is not enclosed. All authorization to charge Deposit Account No. 06-1358 for 35 C.F.R. 1.16 fees previously made is revoked.
5. ☐ A check in the amount of \$_____ is enclosed.
6. ☒ Amend the specification by inserting before the first line the sentence:

This is a Continuation of application Serial No. 10/669636 filed September 25, 2003.

☒ which in turn is a Continuation of application Serial No. 10/347577 filed January 21, 2003;

which in turn is a Continuation of application Serial No. 10/153113 filed May 23, 2002, now abandoned;

which in turn is a Continuation of application Serial No. 08/914833 filed August 19, 1997, now abandoned.
7. ☒ A verified statement claiming small entity status under 37 CFR 1.9 and 1.27:

a) ☒ was claimed by way of a declaration filed in prior application Serial No. 08/914833. (copy attached)

b) ☐ is claimed by way of the attached declaration.
8. ☐ Priority of application Serial No. _____, filed on _____ in _____ is claimed under 35 U.S.C. 119.

a) ☐ Certified copy is on file in prior application, Serial No. _____.

b) ☐ Certified copy filed herewith.
9. ☒ The prior application is assigned of record to THE P.C. & H.P.W. GREEN CHARITABLE TRUST and PC & MD GREEN FAMILY TRUST (50% each).
10. ☒ The Power of Attorney in the prior application is to at least one of the following:

John Clarke Holman, 22,769; Harvey B. Jacobson, Jr., 20,851; Marvin R. Stern, 20,640; Allen S. Melser, 27,215; Michael R. Slobasky, 26,421; Jonathan L. Scherer, 29,851; Irwin M. Aisenberg, 19,007; William E. Player, 31,409; Yoon S.

Ham, 45,307; and Nathaniel A. Humphries, 22,772.

a) ☒ The power appears in the original papers of the prior application.

b) ☐ Since the power does not appear in the original papers, a copy of the power in the prior application is enclosed.

11. ☒ Petition to extend the life of the above prior application to at least the date hereof

(One box) ☐ is being concurrently filed in
NOTE: (must be) that prior application.
(X'd) ☐ was previously filed in that application.
☒ is not necessary.

If a Petition for Extension of Time is necessary and the Petition and/or the check is not enclosed, this will act as the Petition and applicant herewith petitions the Commissioner to extend the time for response and charge any fees necessary under 37 CFR 1.17 (a)(1)-(5) to Deposit Account No. 06-1358.

12. ☐ New formal drawings are enclosed.

13. ☒ Enclosed is a copy of the Information Disclosure Statement (IDS) and PTO 1449 which was filed in Serial No. 08/914833, filed August 19, 1997 which is relied on for an earlier filing date under 35 U.S.C. 120.

a) ☐ More than one IDS was filed in the above Serial No. and copies of each IDS, less the documents, are enclosed.

14. ☒ Enclosed is a copy of the PTO 892 which issued in Serial No. 08/914833, filed August 19, 1997 which is relied on for an earlier filing date under 35 U.S.C. 120.

a) ☐ More than one PTO 892 issued in the above Serial No. _____ and copies of each PTO 892, less the documents, are enclosed.

15. ☒ Also enclosed is: Petition for Revival of an Application for Patent Abandoned Unintentionally Under 37 C.F.R. 1.137(b); Form PTO-2038; and New Power of Attorney and Change of Correspondence Address

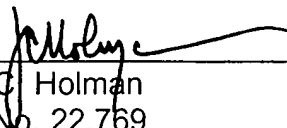
Address all future correspondence to:

Customer No. 00136
or
JACOBSON HOLMAN PLLC
400 Seventh Street, N.W.
Washington, D.C. 20004-2201
Telephone 202/638-6666

Enclosed is a copy of the prior application including the Declaration as originally filed, application, namely Serial No. 08/914833, filed on August 19, 1997. The entire disclosure of the prior application is hereby incorporated by reference.

Respectfully submitted,

By

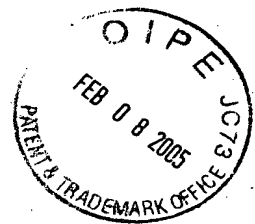


John C. Holman
Reg. No. 22,769
JACOBSON HOLMAN PLLC
400 Seventh Street, N.W.
Washington, D.C. 20004
(202) 638-6666

Signed this 21st day of
July, 2004

☒ Attorney or Agent of record

☐ Filed under 37 CFR 1.34(a)



FURTHER IMPROVEMENTS IN AND RELATING TO FENCING

TECHNICAL FIELD

The present invention is directed to the construction of fences. Preferred embodiments comprise fences of metal construction of the type having an upright element spanning
5 two or more rails.

BACKGROUND ART

While in the past many fences have been constructed of masonry or wood, the use of metal for fence construction is becoming more widespread. Typically, such construction comprises lengths of metal tubing which are arranged in an upright fashion between
10 horizontal rails. The method of construction may vary and in some cases the horizontal rails may merely be end capping pieces for the upright elements. In other instances, each rail may pass entirely through the rail and be welded into place. In other arrangements, the upright elements may be fixed to the outside of the rail.

A problem with the prior art is that such methods of construction can sometimes be time
15 consuming, especially where spot welding systems are relied upon to maintain the upright elements in place. Another problem with the prior art is that it is often difficult to use the known methods of construction on uneven ground. Where upright elements pass through, or enter, rails the tolerances are usually quite tight and the upright elements are exactly perpendicular to the rails. When constructing such a fence, the rails
20 must always be truly horizontal, otherwise the upright elements will be non-vertical, and particularly displeasing to the eye.

When such a fence is to be constructed for on sloping ground, each section of fence must be stepped. If not, one ends up with the particularly displeasing situation of rails parallel to the ground, which in itself is aesthetically pleasing, but where the uprights are
25 perpendicular to the ground and non-vertical – very displeasing.

The stepped arrangement causes further problems as the lower rail may be almost touching the ground at the end of one section, and have a considerable gap underneath at the other end of that section. This generally necessitates building up a foundation to close this gap, or altering the contour of the ground. For greater slopes, very short stepped sections may be required, which also increases the number of posts which must be secured into the ground. These factors can greatly add to the time and expense of constructing a fence.

It is an object of the present invention to address the foregoing problems or at least to provide the public with a useful choice.

Further aspects and advantages of the present invention will become apparent from the ensuing description which is given by way of example only.

DISCLOSURE OF INVENTION

According to one aspect of the present invention there is provided a fence, or preassembled fence section, comprising a plurality of upright elements spanning at least two rails, the arrangement being such that the upright elements are positioned within apertures in said rails, and there being inserts interacting between a said rail and an upright member to maintain the relative disposition of same.

According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which there are at least two types of insert used for interacting between a rail and upright member.

According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which a said insert is positioned within the apertures in a rail and lock in place with respect to same so as to resist easy withdrawal in a direction substantially parallel to the longitudinal axis of an inserted portion of an upright element.

According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which said insert interlocks with and is retained by the rail by at least one of the following methods:

- 5 — there is one or more retractable, compressible, or deformable arms or barbs which, once the insert is positioned, splay outwardly and resist withdrawal of the insert;
- a keyed relationship between insert and rail, and
- at least part of the insert being compressible and/or deformable and including a locating groove or recess for accommodating part of said rail.

10 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which an insert interlocks with and is retained by the rail by a clipping arrangement involving a separate retaining member interacting with either or both the insert and rail.

15 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which a said insert presents, to the upright element, a sleeve or collar portion whose internal diameter and shape is commensurate to the external diameter and shape of the inserted portion of said upright element.

20 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which there is an interlocking relationship between an insert and its associated upright element.

25 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which said interlocking relationship between a rail and its associated upright member comprises a method in which:

- there is one or more retractable, compressible, or deformable arms or barbs provided on the upright member which, once the upright element is positioned, splay outwardly and resist withdrawal of the insert;

5 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which said interlocking relationship between a rail and its associated upright member comprises at least one of the following methods:

- a portion of the upright member including a locating groove or recess for accommodating a feature on said insert, and
- 10 - a portion of the insert including a locating groove or recess for accommodating a feature on said insert.

15 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which at least a portion of said insert is deformable or compressible in order to allow the feature, and groove or recess, to engage during assembly.

According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which said interlocking relationship between a rail and its associated upright comprises a keyed relationship between the upright member and the insert with which it is associated.

20 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which an insert allows an inserted upright element to be oriented at least a small angle from the perpendicular to the rail.

25 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which the small angle is $\pm 30^\circ$ from the perpendicular.

According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which said rails are attached, or adapted to interact with, substantially upright posts or anchor points for support.

- 5 According to another aspect of the present invention there is provided a fence, or preassembled fence section, substantially as described above in which either or both a rail or upright element comprises metal construction.

According to a further aspect of the present invention there is provided a fence, or preassembled fence section, comprising a plurality of upright aluminium or steel
10 elements, said elements being connected to substantially perpendicular steel or aluminium rails by means of inserts which are at least partially formed of a plastics material, the rails being secured to posts or other suitable anchor points.

According to a further aspect of the present invention there is provided a kitset comprising inserts, rails, and upright members, for the construction of a fence, or fence
15 section, according to any one of the preceding claims.

According to a further aspect of the present invention there is provided a method of fence construction comprising the provision of rails of apertures of a size and configuration to accept an insert, securing said rails to posts or anchor points, and including the substantially perpendicular and/or upright placement of upright elements in
20 the apertures of said rails such that an insert is intermediary a rail and upright element, and ensuring the upright elements are resistant to ready withdrawal from said rails.

It is envisaged that the present invention will be used primarily for construction of fences of metal, though other materials could also be used. For simplicity, however, the present description shall be directed to metal fences constructed of steel or aluminium,
25 aluminium alloys, and various iron alloys.

The present invention focuses on fence construction which comprises two (or more) substantially horizontal or ground following rails which are spanned by a plurality of upright elements. According to the present invention the rails may be oriented to be truly horizontal, though may also be fastened so as to parallel the lie of the land.

- 5 The upright elements will generally always be substantially vertical, though it is possible that a user may wish to vary from the true vertical for effect. Accordingly, the term upright when applied to 'upright element' may be interpreted fairly loosely, and typically signifies that the element will typically attain a reasonably upright position when spanning rails – depending on user choice. Typically this will also mean that the upright
10 elements are substantially perpendicular to the rails but again this may vary – see also later herein.

- A potentially realisable advantage of the present invention is that the fence may be assembled on site. In contrast, most prior art systems rely on factory assembled sections which are merely fastened to a post or other anchor point. There is little
15 flexibility in this system and care must be taken to ensure that the fence posts are positioned accurately. However this does not preclude this method of installation from the scope of the present invention – this is primarily a matter of choice for the installer.

- Further, there are often limitations in the size of fence sections so that a user must conform with what is predetermined at the factory. On level ground, this may not
20 represent a problem, though on sloping ground, shorter sections may be required. It may therefore be necessary for a user to request fence sections of customised size, which can increase the cost to the user. With the present invention, it is envisaged that customisable pre-assembled sections may potentially be easier and quicker to construct.

- In contrast, the present invention is readily adapted to be assembled on site. The ability
25 to angle the upright elements in many embodiments from being truly perpendicular to the rails, alleviates some of the problems of irregular section lengths encountered with

sloping ground. Where customised section lengths (between posts) are required, the provided rails may merely be trimmed on site to the required size. Depending upon how the rails are fastened to the posts or anchor points, this impromptu trimming will not cause a problem in many instances.

- 5 At least part of the advantages which can be realised through use of the present invention stem from the manner by which the upright elements and rails connect. In prior art systems, which require welding or press fitting of the different elements, it is not normally practical nor possible to construct the fence sections on site.

- 10 In most embodiments of the present invention there is provided an insert which is intermediary between the rails and upright elements. In most cases, an interlocking connection is formed between the combination of insert, rail and upright elements so that the upright element is not readily withdrawable in at least one of its longitudinal directions.

- 15 More specifically, in many embodiments there is an interaction between the insert and the rail, and the upright member and the insert. In some instances they may be more than one type of insert used between upright members and different rails, and the interaction may vary.

- 20 For instance, it is usually desirable to prevent upright elements from being readily removed or falling free. Accordingly there should be an observed locking relationship between an upright member and at least one rail – though in practice the locking relationship may be via an intermediate insert of a first type. However, this locking relationship need not be repeated for all rails, and thus cheaper or simpler inserts of an alternative type or construction may be used here. This will become clearer from the ensuing description herein.

- 25 In some embodiments an interlocking arrangement between the three main components may not be required. For instance, one embodiment may comprise top and bottom rails

which cap the ends of the upright elements i.e. each end of each upright element passes through an aperture in the two rails, but does not pass fully therethrough. Providing the rails are secured in position at the posts or anchor points, it will not be possible to remove the upright elements without first disconnecting one of the rails.

- 5 In other arrangements, the user's preference may be for upright elements which extend above or below the level of the rails i.e. may pass entirely through one or more of the rails. In such situations, there should be some retaining arrangement to prevent the upright elements from merely being slid from the rails. This is perhaps especially important where some degree of security is also to be provided by the fence.
- 10 While various retaining arrangements may be relied upon to restrict removal of upright elements in a completed fence (including for instance welding, adhesive bonding, and mechanical fastening arrangements), it is perhaps desirable, at least for ready assembly, to rely on the insert to form any interlocking relationship between the rail and upright element.
- 15 In preferred embodiments apertures are already provided in the rails at the appropriate spacings and faces thereof. These apertures, which may be punched, drilled or formed by any other number of means, would generally be appropriately sized and configured to accept an insert. Typically, the insert will be inserted into this aperture and will ideally lock or snap into place once inserted. Again, various connection arrangements are
- 20 known and may be employed in various embodiments, though a press-fit insert arrangement is perhaps easiest to use, especially when being inserted in the field. In some instances, the inserts may be pre-inserted at the factory, in which case harder to fit inserts may be relied upon.

Some of the methods which may be relied upon for an effective interaction between insert and rail include:

- there is one or more retractable, compressible, or resiliently deformable arms or barbs which, once the insert is positioned, splay outwardly and resist withdrawal of the insert;
- a keyed relationship between insert and rail, and
- at least part of the insert being compressible and/or deformable and including a locating groove or recess for accommodating part of said rail.

Another arrangement is where an insert interlocks with and is retained by the rail through a clipping arrangement involving a separate retaining member interacting with either or both the insert and rail. It is possible that such a retaining member interacts with and retains a plurality of inserts, and/or their associated upright elements.

In preferred embodiments an insert will have an outer annular groove commensurate to the thickness of the face of the rail and will fit to the rail much in the same manner as a grommet. This will become clearer from the drawings accompanying this specification. Other arrangements may also be relied upon (see also drawings).

Typically, an insert will present a sleeve or collar to an upright element which is inserted within the insert. Typically, the size and configuration of the aperture of the sleeve/collar will be commensurate to the outer size and configuration of the upright element. In some instances, a tight fit may be presented. However, in preferred arrangements, there is an interlocking arrangement resulting from the interaction between the features on both the upright element and insert.

For instance, an annular groove may be provided about, or at certain points on, the inserted portion of the upright element. One or more protrusions may be provided on the insert which will enter into the provided annular groove once the upright element is inserted. Once clipped, it may be difficult if not impossible to remove the upright

element. The protrusions and/or element may be modified to facilitate insertion, but resist withdrawal. The arrangement could also be reversed with protrusions being provided on the upright element and the annular groove within the insert. A plurality of these features may also be provided between the upright element and insert combination.

5 Other connections/interlocking relationships may also be relied upon between insert and upright elements. For instance, possible methods of forming an interlocking relationship between an insert and upright element include:

- 10 – one or more retractable, compressible, or deformable arms or barbs provided on the upright member which, once the upright element is positioned, splay outwardly and resist withdrawal of the insert;
- a portion of the upright member including a locating groove or recess for accommodating a feature on said insert, and
- a portion of the insert including a locating groove or recess for accommodating a feature on said insert.
- 15 – a portion of said insert is deformable or compressible in order to allow the feature, and groove or recess, to engage during assembly.

In an alternative embodiment of the invention there is a keyed relationship between the insert and upright element. To engage this relationship requires the upright element to be inserted into the insert and then rotated. Again, modifications may be made to resist the reverse combination of movements for withdrawal, once the upright element has been
20 locked into place. In some instances, this interaction need not be great – for instance for circular embodiments the insert may substantially freely rotate within the rail making it difficult to disengage such keyed embodiments if some resistance to reverse rotation of the upright elements with respect to the insert, (for withdrawal) is provided.

25 A locking portion may be provided to prevent reversal of the keyed assembly process. Such a locking portion may comprise a compressible, movable, or resiliently deformable

feature which allows the other of the insert or upright element to pass by, during insertion, until a complementary portion on the other is encountered and engaged.

In most embodiments, the inserts will be of a rigid material, though preferably with some resilience. In preferred embodiments the use of a plastics material is preferred. 5 This can provide several potentially realisable advantages, including the ability to readily mould plastics in a manner not common to many other materials. Further, many plastics materials have the required degree of stiffness and resilience to hold an inserted element in a tight manner. Where slightly oversized components are provided, the chosen plastic material may be able to deform slightly to accommodate the difference in size, and 10 thereby maintain a tight fit. Further, the non-conducting nature of most plastics materials can help protect against galvanic action between the various components of the fencing system.

Another important advantage in some embodiments is the ability of the plastics material to deform slightly or exhibit resilience. Because of this, it is possible in many 15 embodiments to angle the upright elements slightly with respect to the rails. Here the resilience and deformability of the inserts (depending upon the design) may allow the upright element to be inserted and held other than at the true perpendicular to the rail. The actual deviation from perpendicular will vary according to the nature of the insert, and whether the upright element passes entirely through the rail (and consequently the 20 positioning of apertures to accommodate the upright element on opposite faces of the rail). While modifications may be made to accommodate a wide range of angles of deviation, it is envisaged that most embodiments will allow the upright element to be positioned within $\pm 30^\circ$ inclusive of the perpendicular, while the bulk of embodiments will allow a deviation of $\pm 15^\circ$ of the true perpendicular. In embodiments where the rails 25 are always to be truly horizontal to the ground, the deviation may be limited to within a few degrees of the true perpendicular e.g. $\pm 5^\circ$.

In embodiments where a large angle deviation from the perpendicular is required, modified inserts may be provided in which the provided sleeve aperture for the upright element is at an angle to the perpendicular when the insert is at rest within the rail i.e. not under any stress or deformation. A range of different inserts may therefore be provided so that the user, on site, can select the most preferable insert for the situation.

BRIEF DESCRIPTION OF DRAWINGS

Further aspects of the present invention will become apparent from the ensuing description which is given by way of example only and with reference to the drawings accompanying the provisional specification and in which:

- 10 Figures 1 illustrate one preferred embodiment of an insert, its relationship with the rail, and an embodiment of an upright element for use with same; and
- Figure 2 is an alternative embodiment of the central portion of an insert and an upright element for use with same, illustrating the interlocking portions; and
- 15 Figures 3 represent a further embodiment of an interlocking insert and its relationship in a capping embodiment of a rail; and
- Figures 4 illustrate a rectangular embodiment of an insert, its relationship with the rail and an embodiment of an upright element for use with same; and
- Figures 5 illustrate a further preferred embodiment of the present invention; and
- 20 Figures 6 illustrate modified washer and insert used in the embodiment of Figure 5.

BEST MODES FOR CARRYING OUT THE INVENTION

With reference to the drawings by way of example only, there is provided a fence (not shown) comprising a plurality of upright elements (1-3) spanning at least two rails (4-6), the arrangement being such that the upright elements (1-3) are positioned within
5 apertures (7, 8) in said rails (4-6), there being inserts (9-12) between said rail (4-6) and upright element (1-3) to maintain the relative disposition of same.

Figures 1 illustrate one particular arrangement according to the present invention. Figure 1a shows a plan view of a preferred insert of this particular embodiment. This insert 9 resembles a grommet and includes an annular groove 13 to which the edge of the
10 aperture 7 provided in the rail 4 is accommodated. This effectively locks the insert 9 into place with respect to the rail 4. This can be seen in Figure 1b where a capping type rail (4) is used, while in Figure 1c the rail 4a has been modified to allow the upright elements to pass entirely through the rail 4a.

Once the insert 9 is positioned within the rail 4, 4a, it is difficult to remove. Some
15 rotation of the insert 9 is possible, with respect to the rail, which can resist removal of the upright element 1 when locked into position.

Figure 1c illustrates an upright element 1, and also the pin 14 extending from opposite sides of the insert 1. This pin (when the upright element 1 is being inserted into the insert 9) travels down provided channels 15 until they encounter the annular groove 16
20 provided on the inside of the insert. At this point, the upright element 1 is rotated so that the pin travels through the annular groove 16 (whose diameter gradually decreases so that the pin represents a tight fit) and then encounters a further recess 17. At this point, the pin 14 clicks into position so that the insert 1 cannot be rotated in the opposite direction for removal. If the upright element 1 is rotated, then the insert 9 will rotate
25 with it.

Figure 2 illustrates the central portion 10 of an insert. Various locking arrangements, such as illustrated in Figures 1, can be used to secure the insert 10 in position with respect to the rail.

5 Provided on the inside of the insert 10 is an inwardly directed circumferential barb which interacts with an annular groove 18 on upright element 2. As can be seen, there is a one way interlocking interrelationship between the barb 19 and groove 18.

Figures 3 illustrate a further embodiment of an insert 11. This insert 11 connects to the rail 5 in the same manner of insert 9. Two inwardly directed protrusions 20 are provided which interact with recesses in an upright element. The recess may comprise
10 an annular groove such as illustrated in Figure 2b, or may merely comprise appropriately dimensioned and positioned apertures in the upright element.

In the arrangement of Figure 3a, the rail 5 acts as a capping rail i.e. the upright element 11 does not pass entirely through the rail 5. Such a capping rail 5 may be provided on the top and/or bottom of a section of the constructed fence.

15 Figures 4 illustrate an alternative insert 12 which is of substantially rectangular cross section when viewed in plan. The length (when viewed left to right in the diagram) is commensurate to the inside width of the rail. This enables the insert 12 to be inserted through an aperture 25 in the base of the rail 6 then rotated 90° so that its length is directed width ways within the rail.

20 This inserted position is illustrated in Figures 4b and 4c. Because of the rectangular nature of the insert 12, it is not easily locked in or out of position. When the insert 3 is inserted, an annular groove 26 accommodates protrusions 27 on the insert. Lengthwise removal of the inserted upright element 3 is not easy due to the nature of the interlocking relationship (26, 27). Because the protrusions 27 are accommodated by an annular
25 groove 26 extending the entire circumference of the upright element, the upright element 3 is able to be continuously and freely rotated once inserted. Accordingly, it is not

possible to use the inserted element 3 to attempt to rotate and remove the insert 12 from the rail 6. This helps ensure good resistance to upright element 3 removal, which is desirable in security conscious applications.

5 The accompanying drawings illustrate but a few possible arrangements of an upright element, and insert and rail. The illustrated examples are demonstrative only and represent but a few possible embodiments of the present invention. Other fastening and clipping arrangements between inserted rail and insert and rail are possible, and may be employed in various embodiments.

10 Various embodiments may also be more or less adapted to arrangements in which the inserted element is not truly perpendicular to the rail. For the arrangement of Figure 4c, the elongated aperture 25 allows the upright element 3 to be angled with respect to the rail 6 – the bottom aperture 25 is not so restrictive as to prevent any angling of the upright element 3 with respect to the true perpendicular. In the embodiment of Figure 1b, deformation of the insert 9 will allow some angling of the insert with respect to the
15 rail 4, though an even lesser degree of angling would be possible in the arrangement of Figure 1c unless the width of the bottom aperture (measured left to right on the drawing of Figure 1c) was enlarged into a slot.

The arrangement of Figure 4c is perhaps best for embodiments in which the upright element must be angled with respect to the rail. In this arrangement, it is possible for the
20 entire body of the insert 12 to angle to match the orientation of the upright element 3. However, in the embodiments of Figures 1 and 3, excessive angling may cause release of the insert from the rail. This may be partially addressed by providing modified angled inserts in which the inserted element is naturally held at a particular angle.

In some instances, it may be difficult to physically insert the upright elements 3 through
25 the plastic inserts 52, 53 associated with the rails 50, 51. Problems are particularly encountered for the lower rail 51 mounting where the barb 54 may be difficult to pass

through the round aperture 55 of the insert 53. In the embodiment of Figure 6a a cut 56 is provided down one side of the insert 53. This allows the central aperture 55 to expand as the upright element 3 is passed through, allowing barb 54 to click into place within the insert (see for instance Figure 5c). However, providing the cut 56 can
5 compromise the effectiveness of the insert 53 in preventing removal of the upright element 3. In some cases attempted rotation and pulling on the element 3 could result in withdrawal of the upright element 3 from the insert 53.

To address this, the embodiment of Figures 5 makes use of a rigid insert 60, typically of metal, which interacts with the base of the flexible insert 53. The upright element 3 may
10 be further modified immediately below the barb 54 by the provision of a groove, or flattened portion of lesser diameter, which corresponds to the internal width across the aperture 61 of insert 60. In Figures 6b, this is the narrowest dimension of the aperture 61.

The consequence is that once pushed into position, the upright element is unable to rotate
15 with respect to rigid insert 60. Upward tabs 62 on the insert 60 interact with further apertures 58 on the flexible insert 53. As a consequence, in an installed embodiment (see Figure 5c for instance) it is not possible to rotate the upright element 3 with respect to flexible insert 53, or rigid insert 60. Any attempted rotation of the upright element 3 will result in corresponding rotation of inserts 53 and 60, which would normally only
20 occur during initial installation of an upright element 3 in the bottom rail 51.

Similar principles may also be applied to a mounting system associated with the top rail of 50. Various other modifications and adaptations of the principles generally shown in Figures 5 and 6, may also be applied in other embodiments of the present invention.

Aspects of the present invention have been described by way of example only and it
25 should be appreciated that modifications and additions may be made thereto without departing from the scope thereof as defined in the appended claims.

WHAT IS CLAIMED IS:

1. A fence, or preassembled fence section, comprising a plurality of upright elements spanning at least two rails, the arrangement being such that the upright elements are positioned within apertures in said rails, and there being inserts interacting between a said rail and an upright member to maintain the relative disposition of same.

2. A fence, or preassembled fence section, as claimed in Claim 1, in which there are at least two types of inserts used for interacting between a rail and upright member.

3. A fence, or preassembled fence section, as claimed in Claim 1, in which a said insert is positioned within the apertures in a rail and lock in place with respect to same so as to resist easy withdrawal in a direction substantially parallel to the longitudinal axis of an inserted portion of an upright element.

4. A fence, or preassembled fence section, as claimed in Claim 3, in which there is an interlocking relationship between a said insert and a rail with which it interacts.

5. A fence, or preassembled fence section, as claimed in Claim 4, in which said insert interlocks with and is retained by the rail by at least one of the following methods:

a) there is one or more retractable, compressible, or deformable arms or barbs which, once the insert is positioned, splay outwardly and resist withdrawal of the insert;

b) a keyed relationship between insert and rail; and

c) at least part of the insert being compressible and/or deformable and including a locating groove or recess for accommodating part of

said rail.

6. A fence, or preassembled fence section, as claimed in Claim 4, in which an insert interlocks with and is retained by the rail by a clipping arrangement involving
5 a separate retaining member interacting with either or both the insert and rail.

7. A fence, or preassembled fence section, as claimed in Claim 6, in which said retaining member interacts with and retains a plurality of inserts, and
10 their associated upright elements.

8. A fence, or preassembled fence section, as claimed in Claim 3, in which a said insert presents, to the upright element, a sleeve or collar portion whose internal diameter and shape is commensurate to the external diameter
15 and shape of the inserted portion of said upright element.

9. A fence, or preassembled fence section, as claimed in Claim 3, in which there is an interlocking relationship between an insert and its associated upright element.

20 10. A fence, or preassembled fence section, as claimed in Claim 9, in which said interlocking relationship between a rail and its associated upright member comprises a method in which:

a) there is one or more retractable,
25 compressible, or deformable arms or barbs provided on the upright member which, once the upright element is positioned, play outwardly and resist withdrawal of the insert.

11. A fence, or preassembled fence section, as
30 claimed in Claim 9, in which said interlocking relationship between a rail and its associated upright member comprises at least one of the following methods:

a) a portion of the upright member including a locating groove or recess for accommodating a feature
35 on said insert; and

b) a portion of the insert including a locating groove or recess for accommodating a feature on said insert.

5 12. A fence, or preassembled fence section, as claimed in Claim 9, in which at least a portion of said insert is deformable or compressible in order to allow the feature, and groove or recess, to engage during assembly.

10 13. A fence, or preassembled fence section, as claimed in Claim 9, in which said interlocking relationship between a rail and its associated upright element comprises a keyed relationship between the upright member and the insert with which it is associated.

15 14. A fence, or preassembled fence section, as claimed in Claim 13, in which the keyed relationship comprises an insert and rotate arrangement.

15. A fence, or preassembled fence section, as claimed in Claim 14, in which there is a locking portion such that once rotated into position, the inserted upright element cannot be readily reversibly rotated for release.

20 16. A fence, or preassembled fence section, as claimed in Claim 15, in which a said locking portion comprises a compressible, movable, or resiliently deformable feature which allows the other of the insert or upright element to pass by, during insertion, until a
25 complementary portion on the other is encountered and engaged.

30 17. A fence, or preassembled fence section, as claimed in Claim 3, in which an insert, or a portion thereof, is of a rigid material having at least a small amount of resilience.

18. A fence, or preassembled fence section, as claimed in Claim 3, in which an insert allows an inserted upright element to be oriented at least a small angle from the perpendicular to the rail.

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19. A fence, or preassembled fence section, as claimed in Claim 18, in which the small angle is $\pm 30^\circ$ from the perpendicular.

20. A fence, or preassembled fence section, as claimed in Claim 18, in which the small angle is $\pm 15^\circ$ from the perpendicular.

21. A fence, or preassembled fence section, as claimed in Claim 3, in which an inserted upright element passes entirely through said rail.

22. A fence, or preassembled fence section, as claimed in Claim 3, in which said rails are attached, or adapted to interact with, substantially upright posts or anchor points for support.

23. A fence, or preassembled fence section, as claimed in Claim 22, in which said rails are positioned within apertures in said posts or anchor points.

24. A fence, or preassembled fence section, as claimed in either Claim 22, in which a rail insert is positioned between a said rail and post/anchor combination.

25. A fence, or preassembled fence section, as claimed in Claim 3, in which either or both a rail or upright element comprises metal construction.

26. A fence, or preassembled fence section, as claimed in Claim 25, in which the metal is aluminum, an aluminum alloy, iron, or an alloy of iron.

27. A fence, or preassembled fence section, as claimed in Claim 3, in which an insert comprises a plastic material.

28. A fence comprising a plurality of upright aluminum or steel elements, said elements being connected to substantially perpendicular steel or aluminum rails by means of inserts which are at least partially formed of a plastic material, the rails being secured to posts or other suitable anchor points.

29. A method of fence construction comprising the provision of rails of apertures of a size and configuration to accept an insert, securing said rails to posts or anchor points, and including the substantially perpendicular and/or upright placement of upright elements in the apertures of said rails such that an insert is intermediary a rail and upright element, and ensuring the upright elements are resistant to ready withdrawal from said rails.

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ABSTRACT

This invention relates to fence, or preassembled fence section, comprising a plurality of upright elements spanning at least two rails, the arrangement being such that the upright elements are positioned within apertures in said rails, and there being inserts interacting between a said rail and an upright member to maintain the relative disposition of same.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): GREEN

Serial No.: 08/914,833

Group: 3629

Filed: August 19, 1997

Examiner: J. COTTINGHAM

For: FURTHER IMPROVEMENTS IN AND RELATING TO FENCING

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Customer No. 00136

or

JACOBSON, PRICE, HOLMAN & STERN, PLLC

The Jenifer Building
400 Seventh Street, N.W.
Washington, D.C. 20004-2201

telephone (202) 638-6666 (to whom all communications about this application are to be directed); and each attorney thereof named below with registration numbers, and of the same address:

JOHN CLARKE HOLMAN, Reg. No. 22,769
HARVEY B. JACOBSON, JR., Reg. No. 20,851
D. DOUGLAS PRICE, Reg. No. 24,514
MARVIN R. STERN, Reg. No. 20,640
ALLEN S. MELSER, Reg. No. 27,215



MICHAEL R. SLOBASKY, Reg. No. 26,421
JONATHAN L. SCHERER, Reg. No. 29,851
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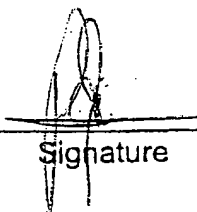
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Peter C. Green)	Art Unit:	Unknown
Serial No.:	08/914,833)	Examiner:	Unknown
Filed:	August 19, 1997)		
For:	FURTHER IMPROVEMENTS IN AND)		
	RELATING TO FENCING)		

INFORMATION DISCLOSURE STATEMENT
PURSUANT TO 37 CFR SECTION 1.97

ASSISTANT COMMISSIONER FOR PATENTS
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Dear Sir/Madam:

Pursuant to 37 CFR Section 1.97 (as amended on March 16, 1992)
the following Information Disclosure Statement is submitted as
listed on form PTO-1449 enclosed herewith in duplicate. Copies of
all disclosure document(s) is/are attached hereto for the
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No representation is made that the reference(s) disclosed
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The reference(s) listed herein, when taken alone or in combination, is/are not believed to disclose nor make obvious the invention as claimed in the subject application.

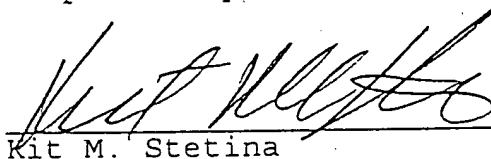
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Respectfully submitted,

Dated:

10/21/97

By:



Customer No.: 007663

Kit M. Stetina
Registration No. 29,445
STETINA BRUNDA GARRED & BRUCKER
24221 Calle de la Louisa
4th Floor
Laguna Hills, CA 92653-7602
(714) 855-1246

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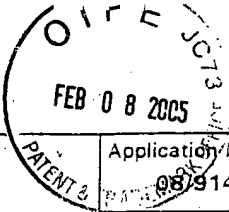
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Notice of References Cited

Application No.

08/914,833

Applicant(s)

Green

Examiner

John Cottingham

Group Art Unit

3629

Page 1 of 1

U.S. PATENT DOCUMENTS

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	5,443,244 ✓	8/1995	Gibbs	256	22
B	4,050,828 ✓	9/1977	Noro	256	22x
C	4,014,520 ✓	3/1977	Walters	256	22
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